

**A NEW SPECIES OF THE *TACHYS* (S. L.) *ECTROMOIDES*-GROUP
FROM SOUTHEASTERN QUEENSLAND, AUSTRALIA
(COLEOPTERA: CARABIDAE: BEMBIDIINI)**

MARTIN BAEHR

Zoologische Staatssammlung, Münchenhausenstr.21, D-81247 Munich, Germany

(Email: martin.baehr@zsm.mwn.de)

Abstract

Tachys federicae, sp. n., in the enigmatic *ectromoides* species-group (*sensu* Baehr 1989) of the genus *Tachys* Dejean, 1825 (*sensu lato*), is described from mountains near Brisbane in southeastern Queensland, Australia. The species is distinguished from all other species of the *ectromoides*-group by its striking bicolouration and narrow pronotum. A revised key to all species of the group is included.

Introduction

In Australia, the carabid genus *Tachys* Dejean, 1825, in the widest sense, includes a number of species that are not easily included in one of the generally accepted genera (or subgenera, according to the opinion of the respective workers). Thus, for the present, they are treated as species-groups with doubtful relationships. One of these is the *ectromoides*-group (*sensu* Baehr 1989), which includes about half a dozen species that are characterized by: presence of two deep foveae in the mentum; a very distinct, elongate, straight lateral carina at the basis, and a deeply impressed, wide basal part of the median line on the pronotum; laterad relatively little produced eye; and very glossy and even slightly sericeous surface of the elytra. The species-group is distributed mainly in eastern Australia from New South Wales to Windsor Tableland in northern Queensland, with a single species occurring in the southwestern part of Western Australia (Sloane 1896, Darlington 1962, Baehr 1989, 1991, 2003).

Species of the group are rarely collected, perhaps because they appear to live on or under the bark of trees or in leaf litter. They occur in rain forests as well as in open forests and woodlands. However, arboricolous habits are not verified for all species.

Among a number of carabid beetles sent for identification from the Queensland Museum, Brisbane, was a single specimen of another species of this enigmatic *ectromoides*-group that is described in the present paper. The single female specimen of the new species is outstanding within the *ectromoides*-group in its large body size, narrow pronotum and contrasting colouration, making its description justified.

Materials and methods

Measurements were taken using a stereo microscope with an ocular micrometer. Body length was measured from apex of labrum to apex of elytra, length of pronotum along midline, length of elytra from the most advanced part of the humerus to the very apex.

For dissection of the female genitalia the specimen was softened for a night in a jar under moist atmosphere, then the genitalia were removed and subsequently cleaned for a short while in hot KOH. The habitus photograph was obtained with a digital camera using AutoMontage and subsequently was worked with Corel Photo Paint X4.

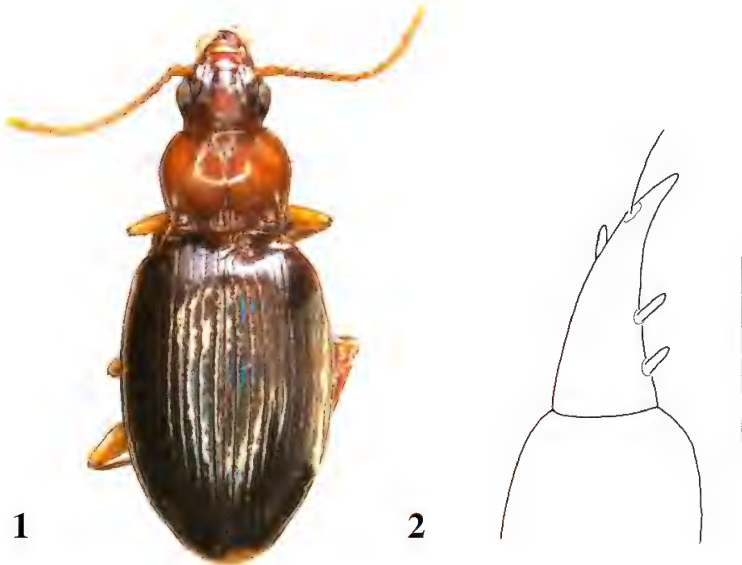
The holotype of the new species is deposited in the Queensland Museum, Brisbane (QM).

***Tachys federicae* sp. n.**

(Figs 1-2)

Type material. Holotype ♀, QUEENSLAND: 27.295°S 152.749°E, Mt.Tenison Woods, 631 m, 29 Oct 2009, 19171, G.B. Monteith & F. Turco, sieved litter (QM Reg. No. QMT224214).

Diagnosis. Characterized and distinguished from all other species of the group by combination of large body size (in group), narrow prothorax, distinct, isodiametric microreticulation of pronotum, conspicuously crenulate elytral striae, and the contrasting colour with red head and pronotum and almost black elytra.



Figs 1-2. *Tachys federicae* sp. n.: (1) dorsal view of holotype female, length: 3.65 mm; (2) female gonocoxites (scale bar: 0.1 mm).

Description. Measurements. Length: 3.65 mm; width: 1.55 mm. Ratios: width/length of pronotum: 1.36; width base/apex of pronotum: 1.38; length/width of elytra: 1.49; width elytra/pronotum: 1.63.

Colour (Fig. 1). Head reddish, frons in middle and occiput reddish piceous; pronotum red; elytra almost black, only the very basal margin slightly lighter, also the lateral channel inconspicuously paler. Labrum and mandibles dark red, palpi and antennae dirty yellow, antenna apicad slightly paler. Legs dirty yellow. Whole lower surface pale red. Surface of elytra slightly iridescent.

Head (Fig. 1). Moderately wide. Eye rather depressed, orbit large, oblique-convex, length of orbit almost half of length of eye. Temporal sulcus elongate, deep, straight, slightly oblique, laterally bordered by a conspicuous ridge, anteriorly prolonged onto clypeus, posteriorly almost attaining level of posterior border of eye. Anterior margins of clypeus and labrum straight. Mandible moderately elongate. Dorsal aspect of head markedly trechine-like. Mentum bifoveate, mental tooth present, though wide and rather obtuse at tip. Both palpi densely setose. Terminal palpomeres of both palpi elongate, markedly subulate. Antenna medium-sized, surpassing base of pronotum by about two antennomeres. Median antennomeres about 1.75 x as long as wide. Frons with conspicuous isodiametric microreticulation, microsculpture weaker on clypeus and on neck, meshes there slightly transverse.

Pronotum (Fig. 1). Comparatively narrow in group. Surface in middle slightly convex. Anterior angle well produced, obtuse at apex, lateral margin in apical third markedly curved inwards. Apex with moderately deep excision. Pronotum widest at about middle, behind anterior lateral seta, moderately and almost straight narrowed towards base, lateral margin slightly concave only near base. Basal angle right. Base wide, considerably wider than apex, very slightly produced in middle. Lateral channel anteriorly narrow, slightly widened towards base, neither apex nor base bordered. Anterior transverse sulcus shallow, forming a triangle. Median line shallow, not attaining the apex, suddenly widened and deepened near base to form a conspicuous longitudinal sulcus. Prebasal transverse sulcus deep, straight, interrupted in middle. Submarginal carina conspicuous, elongate, very slightly oblique. Basal grooves large and very deep. Microsculpture on disk fine though distinct, slightly superficial, consisting of fine, isodiametric to slightly transverse meshes; in front of anterior transverse sulcus and across base behind basal transverse sulcus microreticulation strong and regularly isodiametric. Surface of disk moderately glossy, without any perceptible punctures.

Elytra (Fig. 1). Comparatively elongate, but wide in comparison to prothorax, dorsally convex but on disk depressed, with wide base, moderately convex laterally, widest slightly behind middle. Humerus rounded. Lateral channel deep and fairly wide. Scutellary striole absent, though scutellary puncture and

seta present and conspicuous. Striae complete, deeply impressed almost throughout, lateral striae little shallower, only close to apex all striae are slightly shallower. Striae at least in anterior half distinctly punctate or even crenulate. Intervals very slightly raised. 8th stria deeply sulcate in apical half, very fine in basal half, reaching the humeral group of marginal pores. Recurrent stria deeply impressed, bearing a strong ridge posterolaterally, uniting with the 3rd stria. No discal punctures present, although with a setiferous pore within the recurrent stria close to apex. 8 marginal setae present, arranged in three groups of 4 pores near base, 2 behind middle, and 2 near apex, all punctures large and deep and the setae very elongate. Extremely fine and superficial transverse lines only visible at very high magnification (> 150 x), at lower magnification surface appearing glossy and rather iridescent. Metathoracic wings present.

Lower surface. Metepisternum slightly < 2 x as long as wide. All thoracic sterna with several erect, elongate hairs. Abdominal sterna with sparse, much shorter pilosity. Female terminal abdominal sternum quadrisetose.

Legs. Of average size. Tibiae and tarsi with dense and very elongate setosity, claws edentate. Squamosity of male anterior tarsus unknown.

Male genitalia. Unknown.

Female gonocoxites (Fig. 2). Apex of gonocoxite 1 without setae. Gonocoxite 2 narrow and elongate, slightly curved, with acute apex; with one rather small dorsomedian ensiform seta located slightly apicad of middle, two narrow but rather elongate, widely separated ventrolateral ensiform setae situated in basal half, and one elongate nematiform seta that originates from a circular pit near apex.

Variation. Unknown.

Etymology. The species name is a patronym in honour of one of the collectors, Federica Turco of Queensland Museum (now at Australian National Insect Collection, Canberra).

Distribution. Southeastern Queensland. Known only from the type locality.

Collecting circumstances. The holotype was collected by sieving litter in subtropical rainforest at medium altitude.

Relationships. This is a unique species within the *ectromoides*-group. It may be more closely related to *T. fortistriatus* Baehr, 2003, which is also from southeastern Queensland, than to any other species but, without knowledge of the male genitalia, this is speculative.

Key to species of *Tachys ectromoides*-group

For better distinction the key from the most recent paper on the group (Baehr 2003) is revised as follows.

- 1 Elytra with distinct colour pattern; discal elytral punctures present 2
 - Elytra unicolourous, or with very indistinct pattern (base ill-delimited paler); discal elytral punctures absent 3
- 2 Elytra yellow with wide brown fascia and piceous apex; antenna yellow throughout; pronotum very wide, base almost as wide as width of pronotum in middle; surface conspicuously reticulate. Eastern Australia *T. ectromoides* Sloane, 1896
 - Elytra piceous with indistinct lighter spots at humeri and in posterior third; antenna piceous with 1st, 2nd and base of 3rd antennomeres yellow; pronotum evidently narrowed to base; surface almost smooth, nitid. Southwestern Western Australia *T. marri* Baehr, 1989
- 3 Larger species, length > 3.2 mm; **either** median antennomeres c. 3 x as long as wide, **or** head and pronotum red and elytra contrastingly dark 4
 - Smaller species, length 2.6-2.9 mm; median antennomeres < 1.5 x as long as wide; colour not as contrasting 5
- 4 Colour rather uniformly reddish piceous to piceous; median antennomeres c. 3 x as long as wide. Northeastern New South Wales *T. bolus* Darlington, 1962
 - Colour contrasting: head and pronotum red, elytra dark (Fig. 1); median antennomeres < 2 x as long as wide. Southeastern Queensland *T. federicae* sp. n.
- 5 Pronotum narrower, ratio width/length < 1.35; elytra wider in comparison with pronotum, ratio width elytra/pronotum > 1.5, elytra more oval-shaped, lateral margins more convex 6
 - Pronotum wider, ratio width/length c. 1.44; elytra narrower in comparison with pronotum, ratio width elytra/pronotum < 1.45, elytra less oval-shaped, lateral margins more parallel-sided. Southeastern Queensland *T. fortestriatus* Baehr, 2003
- 6 Head, pronotum, and base of elytra reddish, rest light piceous; base of pronotum wider, ratio base/apex > 1.4; striae less impressed, even basally barely crenulate, lateral striae feebly indicated. Eastern New South Wales, southeastern Queensland *T. bolellus* Darlington, 1962
 - Colour almost black, only pronotum dark piceous; base of pronotum narrower, ratio base/apex < 1.3; striae well impressed, distinctly crenulate in basal half, lateral striae well marked. Northeastern Queensland *T. windsorensis* Baehr, 1991

Discussion

Unfortunately, the systematic position of the *ectromoides*-group within the 'genus' *Tachys sensu lato* is still uncertain, similar to the systematic position

of a number of other Australian tachyine species and species-groups of different shape and structure. Although a number of workers in more recent times have tried to elucidate the generic and subgeneric taxonomy of the former genus '*Tachys sensu latissimo*', this is still remarkably controversial. Even the application of certain well recognizable and generally accepted genera to the Australian Tachyina leaves a number of Australian species unplaced, because presently they cannot be included with good reasons in one of these genera. The species that are combined in the *ectromoides*-group form one of these groups of uncertain status.

All species of the *ectromoides*-group are apparently rare, perhaps because they have not been searched for in their characteristic habitats. Indeed, almost all specimens that bear records of their collecting circumstances, apart from those discovered by the author, have been collected at light or in flight intercept traps, which implies that these records are from specimens on the wing. The record of the new species described herein adds another sampling circumstance, namely sieving from leaf litter. Due to the apparent rarity of all species, males of some species are so far unknown. Therefore, comparisons of the male aedeagi of all species are not yet possible, making the relationships within the *ectromoides*-group still unclear.

Acknowledgement

My thanks for the kind loan of the new species are due to Dr Geoff Monteith of Queensland Museum, Brisbane.

References

- BAEHR, M. 1989. A new species of the *Tachys ectromoides*-group from Western Australia (Coleoptera, Carabidae, Bembidiinae). *Spixiana* **12**: 279-283.
- BAEHR, M. 1991. *Tachys windsorensis*, spec. nov. from North Queensland, a further new species of the *Tachys ectromoides*-group (Insecta, Coleoptera, Carabidae, Bembidiinae). *Spixiana* **14**: 189-192.
- BAEHR, M. 2003. A further new species of the *Tachys (s.l.) ectromoides*-group from Queensland, Australia (Insecta, Coleoptera, Carabidae, Bembidiinae). *Spixiana* **26**: 143-147.
- DARLINGTON, P.J. Jr. 1962. Australian carabid beetles XI. Some *Tachys*. *Psyche, Cambridge* **69**: 117-128.
- SLOANE, T.G. 1896. On the Australian Bembidiides, referable to the genus *Tachys* with the description of an allied genus *Pyrrhotachys*. *Proceedings of the Linnean Society of New South Wales* **21**: 355-377.